WHAT IS CLAIMED IS:

1. A boron nitride agglomerated powder comprising:
an agglomerate fracture strength to tap density ratio not less than about 11 MPa·cc/g.

2. The powder of claim 1, wherein the ratio is not less than about 12 MPa·cc/g.

3. The powder of claim 1, wherein the ratio is not less than about 13 MPa·cc/g.

4. The powder of claim 1, wherein the ratio is not less than about 14 MPa·cc/g.

5. The powder of claim 1, wherein the powder has an average agglomerate size within a range of about 20 to 1000 μm.

6. The powder of claim 1, wherein the powder has an average agglomerate size within a range of about 40 to 500 μm.

7. The powder of claim 1, wherein the powder has an average agglomerate size within a range of about 40 to 200 μm.

8. The powder of claim 1, wherein the powder has an average agglomerate size within a range of about 20 to 90 μm.

9. The powder of claim 1, wherein at least 60% by weight of the powder is within a particle distribution range of about 40 to 200 μm.

10. The powder of claim 1, wherein at least 80% by weight of the powder is within a particle distribution range of about 40 to 150 μm.

11. A boron nitride agglomerated powder comprising:
a fracture strength to envelope density ratio not less than about 6.5 MPa·cc/g.

12. The powder of claim 11, wherein the ratio is not less than about 6.7 MPa·cc/g.

13. The powder of claim 11, wherein the ratio is not less than about 6.9 MPa·cc/g.

14. A microelectronic device, comprising:
an active component that generates heat;
a substrate to which the active component is bonded; and
a thermal interface material provided between the active component and the substrate, the thermal interface material comprising agglomerates having a fracture strength to envelope density ratio not less than about 6.5 MPa·cc/g.

15. The microelectronic device of claim 14, wherein the active component comprises a semiconductor device.

16. The microelectronic device of claim 14, wherein the thermal interface material comprises said agglomerates contained in a polymer matrix, the agglomerates forming a percolated structure for heat transfer.

17. The microelectronic device of claim 15, wherein the ratio is not less than about 6.7 MPa·cc/g.

18. A printed circuit board, comprising:
multiple layers, including at least one layer comprising agglomerates having a fracture strength to envelope density ratio not less than about 6.5 MPa·cc/g.

19. The printed circuit board of claim 18, further comprising conductive features extending through the layers for electrical connection.

20. A composite structural component, comprising:

a matrix phase; and

agglomerates having a fracture strength to envelope density ratio not less than about 6.5 MPa·cc/g.

21. The structural component of claim 20, wherein the structural component is an element of a microelectronic device.

22. The structural component of claim 20, wherein the structural component is hard drive actuator arm.

23. The structural component of claim 20, wherein the structural component is microelectronic case.

24. The structural component of claim 23, wherein the structural component is a computer case.

25. The structural component of claim 23, wherein the structural component is a telephone case.

26. The structural component of claim 20, wherein the structural component is selected from the group consisting of a heater, a heat pipe, an overvoltage component, and a brake component.

27. The structural component of claim 20, wherein the matrix phase comprises a polymer.

28. The structural component of claim 27, wherein the polymer comprises a thermoplastic material.

29. The structural component of claim 20, wherein the agglomerates form a percolated structure for heat transfer.

30. A method for forming a boron nitride agglomerated powder, comprising:

providing a feedstock powder comprising boron nitride agglomerates, the feedstock powder comprising fine crystals having a particle size not greater than about 5 μm; and

heat treating the feedstock powder to form a heat treated boron nitride agglomerated powder.

31. The method of claim 30, wherein the feedstock powder has an average crystal size, the average crystal size being not greater than 5 μm.

32. The method of claim 30, wherein the average crystal size is not greater than 2 μm.

33. The method of claim 30, further comprising:

exposing the heat treated boron nitride agglomerated powder to a crushing operation.

34. The method of claim 33, wherein the feedstock powder has an initial particle size range, and at least 25 wt% of the heat treated boron nitride powder following crushing falls within the initial particle size range.

35. The method of claim 33, wherein after the crushing operation, the heat treated boron nitride powder is classified by particle size.

36. The method of claim 35, wherein after classification, the heat treated boron nitride powder has an average particle size of at least 20 μm.

37. The method of claim 35, wherein after classification, the heat treated boron nitride powder has a particle size distribution within a range of about 20 μm to about 1000 μm.

38. The method of claim 30, wherein the heat treated boron nitride powder has a hexagonal crystal structure.

39. The method of claim 30, wherein the feedstock powder comprises a turbostratic crystal structure.

40. The method of claim 30, further comprising a step of classifying a bulk boron nitride agglomerated powder by particle size, wherein the feedstock powder is a portion of the bulk boron nitride agglomerated powder having a desired particle size range.

41. The method of claim 40, wherein the feedstock powder that falls within the desired particle size range is less than the entirety of the bulk boron nitride agglomerated powder, and a remainder of the bulk boron nitride agglomerated powder is recycled.

42. The method of claim 30, wherein the feedstock powder is formed by:
crushing a solid boron nitride body to form a bulk boron nitride agglomerated powder; and
removing a desired particle size range of the bulk boron nitride agglomerated powder to form the feedstock powder.

43. The method of claim 30, wherein the step of heat treating is carried out at a temperature of at least 1400 °C.

44. The method of claim 43, wherein the temperature falls within a range of about 1600 °C to 2400 °C.

45. A method for forming a boron nitride agglomerated powder, comprising:
providing a bulk boron nitride powder containing boron nitride agglomerates;
removing a portion of the boron nitride agglomerates to form a feedstock powder comprising boron nitride agglomerates; and
heat treating the feedstock powder to form a heat treated boron nitride agglomerated powder.

46. The method of claim 45, wherein the portion removed corresponds to a desired particle size range.

47. The method of claim 45, wherein removal of the portion of the boron nitride agglomerates is executed by classifying the bulk boron nitride powder by particle size.

48. A method for forming a boron nitride agglomerated powder, comprising:
providing a feedstock powder comprising boron nitride agglomerates, the feedstock powder comprising turbostratic boron nitride; and
heat treating the feedstock powder to form a heat treated boron nitride agglomerated powder.

49. The method of claim 48, wherein the feedstock powder comprises at least 10 wt% turbostratic boron nitride.